

**WIRELESS ACCESS SYSTEM USING MULTIPLE MODULATION
FORMATS IN TDD FRAMES AND METHOD OF OPERATION**

ABSTRACT OF THE DISCLOSURE

There is disclosed a radio frequency (RF) modem shelf for use

5 in a fixed wireless access network comprising a plurality of base stations capable of bidirectional time division duplex (TDD) communication with wireless access devices disposed at a plurality

10 of subscriber premises. The radio frequency (RF) modem shelf comprises: a) a first RF modem for communicating with a plurality of the wireless access devices using TDD frames, each TDD frame having an uplink for receiving data and a downlink for transmitting data; and b) a modulation controller associated with the RF modem shelf for determining an optimum modulation configuration for each of the plurality of wireless access devices communicating with the first RF modem. The modulation controller causes the first RF

15 modem to transmit downlink data to a first wireless access device in a first data block having a first optimum modulation configuration and to transmit downlink data to a second wireless access device in a second data block having a different second optimum modulation configuration.

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